Amendments to th Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) A printing system receiving input data for printing images on a print media, comprising:

an inkjet printhead having a body and ink ejection devices located on a substrate, each being associated with one of plural die sectors;

a temperature sensor that senses temperatures of the plural die sectors and other portions of the inkjet printhead; and

a controller that uses the sensed temperatures to control temperature variations of the die sectors and at other portions of the printhead to be within a predefined range from a starting point of an initial print swath to an end point of the initial print swath and successive print swaths of pigmented ink by constantly sensing the temperatures during the print swaths;

wherein air bubble growth rates and bubble size are minimized within the printhead to enable expulsion of the ink from the printhead without clogging and wherein all of the die sectors are kept at an optimal temperature, including die sectors that are inactive during the initial and successive print swaths.

Claim 2 (Original) The printing system of claim 1, wherein the pigmented ink is printed over large print swaths with a high throughput.

Claim 3 (Original) The printing system of claim 1, wherein the controller is at least one of an integrated circuit processor, a printer driver or firmware.

Claim 4 (Original) The printing system of claim 3, wherein the controller controls an increase in the mean temperature of the substrate through a feedback loop.

Claim 5 (Original) The printing system of claim 4, wherein the feedback loop activates heating elements associated with the ink ejection elements.

Claim 6 (Original) The printing system of claim 1, further comprising a programmable feedback loop that increases a baseline temperature of the substrate before printing the pigmented ink.

Claim 7 (Original) The printing system of claim 6, wherein the programmable feedback loop decreases a temperature differential between the baseline temperature and the mean temperature of the substrate.

Claim 8 (Original) The printing system of claim 1, wherein the controller receives temperature data from a digital temperature sensor before printing begins, compares the temperature data with a set point for printing, and initiates heating elements associated with the ink ejection elements if the temperature data is below a printing threshold.

Claim 9 (Original) The printing system of claim 8, wherein the controller turns off the heating elements when the threshold temperature of the substrate has been reached.

Claim 10 (Original) The printing system of claim 8, wherein the set point temperature for black pigmented ink is 40 degrees Celsius and for color pigmented ink is 45 degree Celsius.

Claim 11 (Currently Amended) A method for printing images with an inkjet printhead on a print media from a printing system having heating elements located on a substrate, the method comprising:

receiving temperature values of plural die sectors having a set of ink ejection elements of the substrate before printing begins;

comparing the temperature values with set points for printing for each die sector;

initiating the heating elements associated with the die sectors that have temperatures below a predetermined printing threshold;

turning off the heating elements associated with the die sectors that have temperatures below a predetermined printing threshold when the threshold temperature of the substrate has been reached;

controlling temperature variations of the die sectors of the printhead to be within a predefined range from a starting point of an initial print swath to an end point of the initial print swath and successive print swaths of pigmented ink by constantly sensing the temperatures during the print swaths; and

minimizing air bubble growth rates and bubble sizes within the printhead to enable expulsion of the ink from the printhead without clogging when pigmented ink is used and wherein all of the die sectors are kept at an optimal temperature, including die sectors that are inactive during the initial and successive print swaths.

Claim 12 (Original) The method of claim 11, further comprising maintaining a mean temperature of the substrate at a temperature that is within a predefined range of an optimal temperature for the production of a droplet of ink.

Claim 13 (Original) The method of claim 12, further comprising controlling temperatures of specific sections of the substrate and a baseline temperature of ink ejection nozzles associated with the respective sections.

Claim 14 (Currently Amended) A large array inkjet printing apparatus that prints pigmented ink, comprising:

a monolithic substrate defining a printhead;

a large array of ink ejection elements formed on the substrate, each being associated with one of plural die sectors;

a nozzle member coupled to the substrate; and

a controller that controls temperature variations of the die sectors and at other portions of the printhead to be within a predefined range from a starting point of an initial print swath to an end point of the initial print swath and successive print swaths of

pigmented ink by constantly sensing the temperatures during the print swaths;

wherein air bubble growth rates and bubble size are minimized within the printhead to enable expulsion of the ink from the printhead without clogging and wherein all of the die sectors are kept at an optimal temperature, including die sectors that are inactive during the initial and successive print swaths.

Claim 15 (Original) The large array inkjet printing apparatus of claim 14, wherein the controller receives temperature data from a digital temperature sensor before printing begins, compares the temperature data with a set point for printing, and initiates heating elements associated with the ink ejection elements if the temperature data is below a printing threshold.

Claim 16 (Previously Amended) The large array inkjet printing apparatus of claim 14, wherein the controller controls an increase in the mean temperature of the substrate through a feedback loop.

Claim 17 (Original) The large array inkjet printing apparatus of claim 16, wherein the feedback loop activates heating elements associated with the ink ejection elements.

Claim 18 (Previously Amended) The large array inkjet printing apparatus of claim 14, further comprising a programmable feedback loop that increases a baseline temperature of the substrate before printing the pigmented ink.

Claim 20 (Previously Amended) The large array inkjet printing apparatus of claim 14, wherein the controller controls temperatures of specific sections of the substrate and a baseline temperature of ink ejection nozzles of the nozzle member associated with the respective sections.